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## Jumpstart 4 Kindergarten: An Early Childhood Data Tracking System

Prepared in partnership with  
The CHILD Network

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# Jumpstart 4 Kindergarten: An Early Childhood Data Tracking System

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## **Executive Summary**

The Carlton County CHILD Network (Connected to Helping In Learning and Development) is a collaboration of professionals focused on improving services to young children and families throughout Carlton County. Jump Start 4 Kindergarten is a data collecting and system improvement initiative of the CHILD Network. Family background information is collected for each child enrolled in early childhood development programs supported by the CHILD Network along with the students' Brigance Screen score, a measure of school readiness.

Ultimately this data can be used to serve many important purposes:

- Teachers can use information about individual children's strengths and weaknesses to target instruction and track progress towards school readiness
- Teachers can better help parents effectively work with their children at home to overcome specific challenges and build on strengths
- Schools and districts can use the information to improve preschool programs and track the overall level of school readiness in Carlton County.
- Longitudinal data collected over multiple years can show the impact early childhood programs have on school readiness, especially for disadvantaged children, and help make the case for continued public support of programs like the CHILD Network

A preliminary database has been constructed with information for over 200 children currently enrolled in early childhood development programs in Carlton County. Brigance screen scores from the fall of the school year before starting kindergarten are included. This data was used to analyze the correlation between child and family characteristics and readiness for school. Important findings were:

- **Nearly half of the students were not prepared for school**—48% of children in the study scored below normal in the fall of the school year before starting kindergarten.<sup>1</sup>
- **Teachers face a wide gap in students' abilities when they enter preschool, making lesson planning to meet students' needs challenging**—38.8% of students scored in the normal range for their age, while 28% of students scored low enough to be referred for intensive remediation.
- **Low parental educational attainment was most consistently associated with below normal scores for children**—positive correlation exists between higher parental education and being prepared for school.

Results show a clear need for early childhood educational services in Carlton county, particularly for children of parents with a high school education or less.

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<sup>1</sup> This number may be underestimating the percentage of students not ready for school since it only looks at students who received at least one year of preschool—selection bias could make this percentage higher than the percentage of all children in Carlton county, including those that receive no out-of-home preschool services.

Teachers may also need support in differentiating instruction to meet the needs of children who are ready to start school and those that arrive at school with basic skill levels well below normal.

As more children are added to the data base, and more data on how students progress through the early years of school, researchers will be able to analyze the impact early education has on children in Carlton County, and how effective preschool programs are at preparing disadvantaged children for school.

## **Introduction to Jump Start 4 Kindergarten**

The Carlton County CHILD Network (Connected to Helping In Learning and Development) is a collaboration of professionals focused on improving services to young children and families throughout Carlton County. Jump Start 4 Kindergarten is a data collecting and system improvement initiative of the CHILD Network. Family background information is collected for each child enrolled in early childhood development programs supported by the CHILD Network along with the students' Brigance Screen score, a measure of school readiness.

Leadership of the CHILD Network has established a uniform survey for parents and guardians to collect important child and family characteristics. Surveys are designed to collect information that has been shown to impact a child's likelihood to be ready for school in the existing literature on early childhood development. Teachers and staff at participating early childhood education centers have been trained to use the Brigance screen to identify a child's readiness for school and current aptitude in language, motor, self-help, social-emotional and cognitive skills. Teachers and parents are already using this information to ensure participating students are ready to start kindergarten.

A preliminary database has been constructed with information for over 200 children currently enrolled in early childhood development programs in Carlton County. Brigance screen scores from the fall of the school year before starting kindergarten are included. This data was used to analyze the correlation between child and family characteristics and readiness for school. As more children are added to the database, and more data on how students progress through the

early years of school, researchers will be able to analyze the impact early education has on children in Carlton County, and how effective preschool programs are at preparing disadvantaged children for school.

### **Existing research on school readiness and child and family characteristics**

The gap in academic achievement between poor minority students and their more affluent white counterparts threatens our country's social and economic stability. Large gaps in test scores between white and minority students as well as higher income and low-income students emerge in early grades, with many poor minority students starting school already behind their white, wealthier peers. Differences in school readiness, parental income, education and family structure, and school and teacher quality could all be impacting this gap in academic performance. Educators and policymakers in the education field can do little to impact the home life of their students, but can change the amount of schooling their students receive. Prekindergarten programs have been shown to effectively boost cognitive skills at the start of kindergarten<sup>2</sup> and provide long-run economic benefits to disadvantaged students

### **Research question and methods**

Given limited resources, the CHILd Network seeks to identify child and family characteristics that might make a student in Carlton County more likely to

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<sup>2</sup> Lee, V. E., Brooks-Gunn, J., Schnur, E., & Liaw, F. (1990). Are head start effects sustained? *Child Development*, 61(2, Special Issue on Minority Children), pp. 495-507.



come to school without the skills necessary to learn. Early childhood education services can then be targeted at these populations to increase the total percentage of children showing up to kindergarten ready for school. Initial Brigance screen scores and child and family background information gathered in the fall of a students' last year of preschool before starting kindergarten was utilized to answer the following research question: What child and family characteristics correlate with not being ready for school?

To answer this question, basic statistics were calculated for two groups of children—those that scored at or above normal and those that scored below normal, or in the referral for intensive services range. Statistical correlations were also calculated between child background characteristics and their readiness for school. Finally, logit regression models were constructed to determine if background characteristics had an impact on a child's likelihood of being ready for school. STATA statistical software was used to perform the analysis.

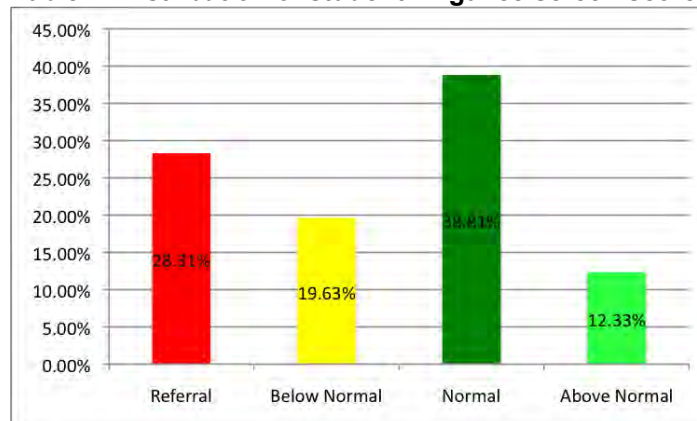
### **Key findings**

***Nearly half of the students scored below normal.*** Of the children in the study 48% scored below normal in the fall of the school year before starting kindergarten. This number may be underestimating the percentage of students not ready for school since it only looks at students who received at least one year of preschool—selection bias could make this percentage higher than the percentage of all children in Carlton county, including those that receive no out-of-home preschool services.

***Teachers face a wide gap in students' abilities when they enter preschool, making lesson planning to meet students needs challenging.***

Based on student answers and their age, students score either above normal, normal, below normal. If students score lower than the below normal range, it is recommended that they be referred for intensive instruction in order to catch them up on key competencies needed to learn in school. Table 1 shows the distribution of scores. The largest group of students, 38.8%, scored in the normal range. However, the second largest group of students, 28% were in the referral category. The majority of students showing up to preschool unprepared were far below the normal range.

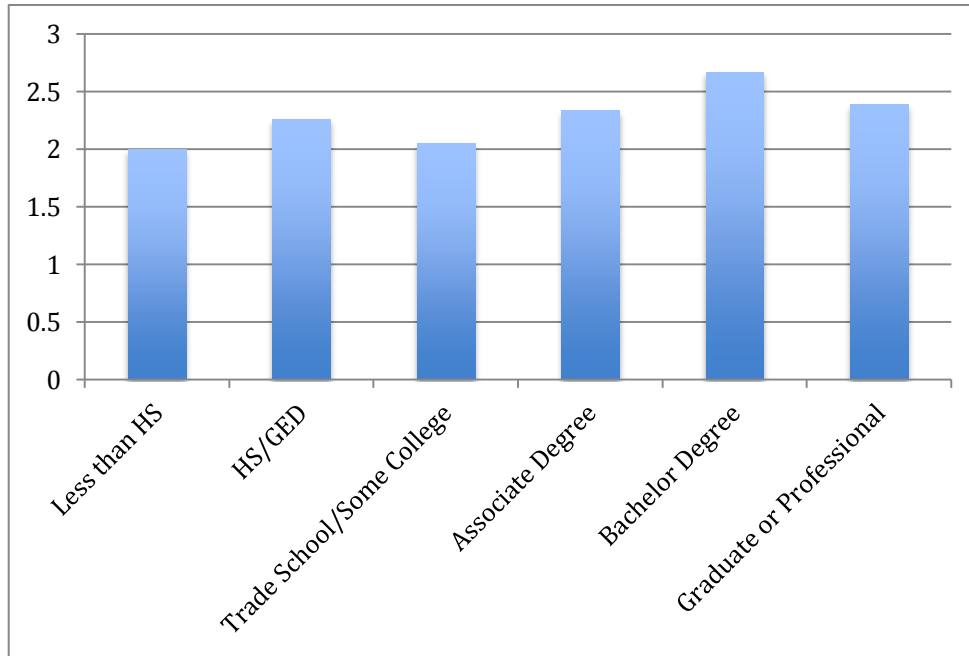
**Table 1: Distribution of student Brigance screen scores**



***Parental educational attainment was most consistently associated with student school readiness.*** A positive correlation exists between higher parental education and being prepared for school. The average Brigance screen score for children whose parents have an associate degree, bachelor degree or graduate degree is much higher than the average score for children with a high school diploma or less. Table 2 shows the average Brigance scores for each category of parental educational attainment. The average educational attainment

level for students who scored at normal or above normal was higher than students that were below normal and in the referral range. Table 3 shows that the average education level for parents of kids that were ready for school was approximately an associates degree, higher than the average for kids that were not ready for school.

**Table 2: Average Brigrance score by parental educational attainment**



**Table 3: Average parental education level by student school readiness group**

Child school readiness	Average parental educational attainment	
Prepared for school	4.04	Associate degree
Not prepared for school	3.39	Trade school/some college

### **Race, Household type and income**

Other factors found to impact school readiness in national studies are race and income.<sup>3</sup> Because of limitations in the data, I used several proxy variables to analyze the relationship between race and income and school readiness in Carlton County. Correlations were weak but generally consistent with what larger national studies have found.

Only nine percent of students in the data set identify as non-white, with the vast majority of those identifying as multiple races. There is a negative correlation between students of color and being prepared for school, and students of color scored on average 15% lower than white students. However, the small sample size makes drawing conclusions from these results dubious.

Average scores by program type and household structure were used to analyze the relationship between income and school readiness. Some of the early childhood programs children were enrolled in had requirements that allow certain assumptions to be made about the families participating. The parents of children in the Young Parents program can be assumed to be younger than the average age of parenthood, and this may cause those families to have lower than average income and or lower educational attainment because parents are more likely to work to support their children than stay in school. Children participating in this program had an average Brigance screen score of 1.83, the lowest average scores of all the subgroups analyzed for this report. However there were only 9 children participating in this program.

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<sup>3</sup> Getting Ready: Findings from the National School Readiness Indicators Initiative, A 17 State Partnership.

Children from families with a single parent scored on average 0.33 lower than children from married households. This difference is small and not statistically significant. However, both the Young Parent program and single parent households were negatively correlated with school readiness.

If low income has a negative relationship with school readiness, then it would follow that higher income would have a positive relationship with being ready for school. It can be assumed that families who send their children to private preschool are more affluent than those who send their children to subsidized programs because of the higher fees associated with private preschool. In the Jump Start 4 Kindergarten database students who attend private preschool scored 15% higher on average on their initial Brigance screen than children attending other programs. In addition, private preschool is positively correlated with student readiness.

### **Statistical Modeling**

Dichotomous dependent variable statistical models were constructed to attempt to identify the impact child and family characteristics have on the likelihood of a student scoring below average on the Brigance screen. No predictive models fit the data well enough to draw significant conclusions. This is not surprising as academic performance is difficult to predict in any dataset, and the Jump Start 4 Kindergarten database is limited in its characteristics and sample size. Parental educational attainment was the only consistently significant variable in all of the models constructed. As more children are added to the

database and more background information is collected on participating families, regression analysis may be possible.

### **Recommendations**

The information collected in this report can help inform how to spend limited dollars for early childhood education programs to boost the number of children coming to school ready to learn. The Jump Start 4 Kindergarten early childhood database has the potential to continue improving education outcomes for children in Carlton County. Data collection and analysis should be an ongoing objective of the CHILD Network. The following are recommendations to use the data we have now, and grow the database to meet the needs of more stakeholders within Carlton County.

- **Target families with a high school degree or less for early childhood education opportunities.** By reaching out to these families you are likely to serve children who would not otherwise come to kindergarten ready to learn.
- **Continue to grow the database.** More children should be added and more data on children already in the system should be sought out. When Brigance data is available for the same group of children over multiple years, much more sophisticated analysis can be conducted on the effectiveness of specific programs.
- **Data should be accessible in multiple formats.** Administrators and district leadership can use high-level data showing averages and

correlations to make resource allocation decisions and to tailor professional development for teachers. Teachers could use detailed student screen scores to find trends in student strengths and weaknesses and to differentiate instruction to better meet the needs of struggling students.